

which values satisfy, as they should do, the equation $l + g + h = nt$. I recall that the precise signification of the constants is as follows:— n is the coefficient of t in the expression of the Moon's longitude in terms of the time, a the corresponding elliptic value of the mean distance ($n^2 a^3 =$ sum of masses), e the excentricity, such that in the expression of the longitude the coefficient of the leading term of the equation of the centre has its elliptic value

$$= 2e - \frac{1}{4}e^3 + \frac{5}{96}e^5$$

and γ the sine of the half-inclination, such that in the expression of the latitude the coefficient of the leading term has its elliptic value

$$= 2\gamma - 2\gamma e^2 - \frac{1}{4}\gamma^5 + \frac{7}{32}\gamma e^4 + \frac{1}{4}\gamma^5 e^2 - \frac{5}{144}\gamma e^6$$

n' , a' are the mean motion and mean distance of the Sun, $m = \frac{n'}{n}$, and e is the excentricity of the Sun's orbit, considered as constant.

Extract of a Letter from Dr. B. A. Gould to the Astronomer Royal, dated Cordoba, Sept. 30, 1871.*

"Our work here has prospered as well as is consistent with the absolute impossibility of beginning it. That is to say, although the Observatory is, up to this present day, twelve and a half months after my arrival, not yet sufficiently complete to enable the instrumental observations for which I came here to begin, the Uranometry has more than fulfilled my most earnest hopes, and has enabled us to work very hard to useful purpose. Between the South Pole and $+10^\circ$ North Declination I have a catalogue of over 7100 stars visible to the naked eye on good nights, reaching to the magnitude which I am at present provisionally designating as 6.6 mag. All these stars have either been identified in the Catalogues or found not to be contained therein, and all their places have been referred to the mean equinox of our adopted epoch. And the magnitudes of all have already been so fully studied that I believe the mean error of the determinations cannot well exceed 0.1 mag. There are relatively few which have not been determined at least twice, and for the majority there are at least four determinations of magnitude, and of course by more than one observer in every case. Another month ought to complete the work of cataloguing and identifying, and of excluding such as, although they have been seen on favourable nights, are below the inferior limit which I have fixed

* Argentine Republic, about Lat. 31° S.—Ed.

upon. Then the work of mapping, of determining the places with greater accuracy, and of revising, will be a matter of simple routine.

"Of course a few variables have come to light, the observations on which I hope soon to have arranged in form for transmission to the *Astronomische Nachrichten* or the Royal Astronomical Society for publication. One has a period of only 21 hours, and though varying through less than a single magnitude, is so near the limit of unaided vision that it oscillates between visibility and invisibility. This is in *Triangulum Australis*. Another which likewise fluctuates through a narrow compass on the two sides of the usual limit is in *Musca*, and has a period of 84 hours, more or less. I have also reason to believe that α , β , and γ *Octantis*, are all of them more or less variable.

"On the 17th October the Observatory is to be formally inaugurated, and I have good reason to believe that within a month from this day I shall be able to begin the work upon the Zones, which formed the real motive of my expedition hither.

"I have seen with some interest the various discussions in the *Monthly Notices* of the Royal Astronomical Society regarding the motion of η *Argûs* in its nebula, or rather regarding alleged changes of form in the nebula itself. Thus far I have only been able to use a portable telescope of about five inches aperture, placed upon the roof of my house. But such observations as I have been able to make, compared with the drawing in Sir J. Herschel's Cape Observations, have tended strongly to impress me with the conviction that the alleged change is altogether imaginary.

"How much I wish Maclear's observations had been accessible you may imagine."

Note on the Inferior Conjunction of Venus. By Capt. W. Noble.

On Sept. 26, I observed *Venus* $1^h 37^m$, after she had passed her inferior conjunction. The state of the atmosphere was too bad to admit of any attempt at micrometrical measurements: but I estimated that her illuminated crescent occupied a little more than a third of her circumference. My chief reason, however, for putting this observation on record is that I quite failed to see the dark body of the planet, which under analogous conditions has always been visible enough before in a constricted field. Doubtless the wretched state of the air may have had something to do with it; but is it possible that the bright background (whatever it may be) on which *Venus* must be projected varies in lustre?

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